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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

PHAM, TAMMY T

ART UNIT

PAPER NUMBER

2629

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/662,518	Applicant(s) YAMAGUCHI ET AL.	
	Examiner TAMMY PHAM	Art Unit 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 July 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-7 and 9-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5-7 and 9-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Claims 4, 8, are canceled. Independent 1 has been amended. Claims 19-20 has been added. Claims 1-3, 5-7, 9-20, are considered below.

Response to Arguments

2. Applicant's arguments filed 16 July 2008 have been fully considered but they are not persuasive.

§ 103 Rejection

3. **In regards to independent claim 1**, Applicant submits that “[b]ecause Edwards teaches that ‘an endless variety of colors’ is needed ‘for best examination,’ it is clear that Edwards does not support the Examiner’s taking of Official Notice that a display would inherently fall within the claimed CIE chromaticity coordinates (Remarks 9).” This is not persuasive.

4. Examiner would like to point out that it is well known in the art to have a monochromatic image display, especially in blue. Edwards was brought in as just one of the many examples that it was well known in the art at the time the invention was made, to have a monochromatic image display in blue. If Applicant would like more clarity in the advantages of having a blue monochromatic display, please feel free to look at references like Fan et al. (U.S. Patent No.: 5,610,413). Fan teaches that a blue display is more beneficial than other colors, such as red, because blue has a shorter wavelength, resulting in higher resolution and increased sensitivity to the human eye (column 1, lines 55-60).

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5. **In regards to independent claim 1**, Applicant submits that *“it is entirely unclear how Uehara shows that it is well known to one of ordinary skill in the art that blue falls within the region surrounded by the claimed points (Remarks 9).”* This is not persuasive.

6. Applicant has specified that the monochromatic image display emits a light that is characterized with the points (0.174, 0), (0.28, 0.32), (gamma, 0.32), on a CIE chromaticity diagram. Examiner has included Uehara to show that it is widely accepted that the points on the CIE diagram that Applicant has described, falls within the range of what is typically known as the color blue.

7. **In regards to independent claim 1**, Applicant *“request that the Examiner provide a supporting reference that a display (such as the electrophoretic display of Jacobson) would inherently fall within the claimed CIE chromaticity coordinates (Remarks 9).”* This is not persuasive.

8. Examiner respectfully submits that the rejection does not assert that a display such as the electrophoretic display of Jacobson inherently falls within the claimed CIE chromaticity coordinates, as Applicant contends. The rejection asserts that including such coordinates would be obvious based on what is well known in the art. The references of Edwards and Fan have been brought in to support Examiner's assertion of Official Notice with regard to the teaching of a blue monochromatic display. Uehara has been introduced as evidence that blue falls within the coordinates that Applicant has specified. Hence, the references to Edwards, Fan, and Uehara each teach of a blue monochromatic display.

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9. **In regards to independent claim 1**, Applicant submits *"that the monochromatic nature of the display is not disclosed by Jacobson or Gordan... the particles may be the same color, [but] the suspension fluid is a different color (Remarks 9)."* This is not persuasive. Even assuming that Applicant's claims are correct, nowhere in the claim language has the Applicant specified that the particles and the fluid must be of the same color. Hence, the teachings of Jacobson and Gordon continue to read upon the claim language as currently stated.

10. **In regards to independent claim 1**, Applicant submits that *"[e]ven assuming Jacobson taught the microparticles 330 as being the 'same color,' which Applicant respectfully submits is not at all clear, this would not teach or suggest that 'items 14, 16, 18,' all be the same color (Remarks 10)."* This is not persuasive, for Applicant is analyzing the references as individual teachings, when the references are taught in combination with one another. As mentioned above, Jacobson in view of Gordon, (with Edwards, Fan, and Uehara as evidence of the assertion of Official Notice) teaches of a monochromatic image display system wherein each picture element emits light in the same color and each picture element comprises a series of spatially adjacent cells, each cell configured to express the same color. In particular, Jacobson teaches of a monochromatic display, and Gordon (as well as Edwards, Fan, and Ushara) teaches that the benefits of having an all blue display is known in the arts, especially in medical displays.

11. **In regards to independent claim 1**, Applicant submits that *"it is not inherent that there is time division relative to the cell as opposed to a pixel as a whole (Remarks 10)."* This is not persuasive. First of all, there is no claim of inherency. What is being shown is that Gordon

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indirectly teachings of a time modulation means since an appropriate voltage, the input signal, is inputted into each cell from time to time (section [0167])).

12. **In regards to claim 16**, Applicant submits that “*Jacobson teaches a ‘nonemissive display’ and, as such, should not have a light source (emissive element). (Jacobson, Col. 1, Ln. 10). As such, Applicant respectfully submits that one of skill in the art would not have been motivated to modify the nonemissive display of Jacobson by adding a light source (Remarks 11).*” This is not persuasive.

13. It would have been obvious to one with ordinary skill in the art at the time the invention was made to implement the same color display of JACOBSON in an OLED display (which consists of some method to emit light that is time modulated to define intensity) because OLEDs displays are energy efficient. Further, even Applicant admits that the same technology may be used in either or LCD or OLED panel (see Specifications: sections [0065, 0164]).

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

14. Claim 19 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

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15. **In regards to claim 19**, Applicant has added the new claim to teach of a *“light source [that] is time modulated to define intensity (lines 1-2).”* However, there is no prior support for this in the original Specifications, hence this is new matter. Appropriate correction is necessary.

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. Claims 1-3, 5-7, 9-15, 17, 20, are rejected under 35 U.S.C. 103(a) as being unpatentable over JACOBSON et al. (US Patent No: 5,961,804) in view of GORDON, II et al. (US Patent No: 6,271,823 B1).

18. **As for independent claim 1, 5, 8, 12, 20**, JACOBSON teaches of a monochromatic image display system comprising a flat panel-like display device (not shown), each picture element (Fig. 3a, item 320) of the display device (not shown) emitting light in a same color (Fig. 3a, item 330).

19. JACOBSON fails to teach that each that the same color falls within the region surrounded by points (0.174, 0), (0.28, 0.32) and (α , 0.32) as represented by co-ordinates (x, y) on a CIE chromaticity diagram, wherein α represents the x-coordinate of the intersection of a spectrum locus and a straight line $y=0.32$;

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20. wherein each picture element of the display device comprises a series of spatially adjacent cells, each cell configured to express tones in three-or-more levels of the same color;
21. the image display system further comprising at least one of:
22. an area modulation means which controls an output luminance of each picture element by selectively turning on and off input signals to the respective cells, for the picture element, independently of each other,
23. a time modulation means which drives the respective cells for each picture element in a time division system, and
24. an intensity modulation means which controls input signal levels to the respective cells for each picture element independently of each other,
25. wherein the cells are driven so that a maximum luminance of each picture element is in a range of 100cd/m² to 10000cd/m².
26. Examiner takes official notice that it is well known in the art to specify that the same color is blue, or specifically that the same color falls within the region surrounded by points (0.174, 0), (0.28, 0.32) and (α , 0.32) as represented by co-ordinates (x, y) on a CIE chromaticity diagram, wherein α represents the x-coordinate of the intersection of a spectrum locus and a straight line $y=0.32$, evidence of which may be found in Edwards et al. (US Patent No: 4,851,900), Fan (US Patent No: 5,610,413), and Uehara et al. (US Patent No: 4,140,940) as explained above.

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27. It would have been obvious to one with ordinary skill in the art at the time the invention was made to have the display device emit light in a same color as taught by JACOBSON and specify that the “same color” is blue because it is a well known common practice within the medical community to produce images in shades of blue (see reference cited above).

28. GORDON teaches that each picture element (Fig. 1, item 26) of the display device (Fig. 1) comprises a series of spatially adjacent cells (Fig. 1, items 14, 16, 18), each cell (Fig. 1, item 14, 16, 18) configured to express various levels in column 4 lines 15-20. (NOTE: Where the amount of color, or the tone, is dependent upon application of varying voltage levels).

29. GORDON further teaches that the image display system (not shown) further comprising at least one of: an area modulation means (not shown) which controls an output luminance of each picture element by selectively turning on and off input signals to the respective cells (Fig. 1, item 14, 16, 18), for the picture element (Fig. 1, item 26), independently of each other in column 4, lines 19-20. (NOTE: Where the on and off states refers to the distributed and collected states).

30. GORDON further teaches of a time modulation means which drives the respective cells for each picture element in a time division system in column 4, lines 14-20. (NOTE: That

Applicant defines the time modulation system in section [0167] to be:

...the time modulation means 220 divides a unit time into four time segments and carries out a time division drive in which the input signal is selectively turned on and off by the time segment. Then an output signal of the time modulation means 220 is input into the area modulation means 230 corresponding to each cell...

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31. according to this broad definition, GORDON indirectly teachings of a time modulation means since an appropriate voltage, the input signal, is inputted into each cell from time to time (section [0167])). GORDON further teaches of an intensity modulation means which controls input signal levels to the respective cells (Fig. 1, item 14, 16, 18) for each picture element (Fig. 1, item 26) independently of each other, wherein the cells (Fig. 1, item 14, 16, 18) are driven in column 4, lines 15-20. Note that although neither JACOBSON nor GORDON specifies that the maximum luminance range is of 100cd/m² to 10000cd/m²; this is a consequence of specifying that the “same color” is blue as explained in claim 1. In other words, in picking the color blue, it is generally presumed that the range is within 100-10000cd/m². For evidentiary reference, please refer to HU et al., US Patent No: 5,932,363; column 13, lines 65-5).

32. It would have been obvious to one with ordinary skill in the art at the time the invention was made to include the area, time and intensity modulation means as taught by GORDON with the same color display of JACOBSON in order to provide a low-powered yet large color gamut display (see GORDON: column 2, lines 64-66).

33. GORDON fails to teach that each cell is expressed in three or more tones.

34. Examiner takes official notice that it is well known to specify that each cell in three or more tones, evidence of which may be found in Edwards et al. (US Patent No: 4,851,900), Fan (US Patent No: 5,610,413), and Uehara et al. (US Patent No: 4,140,940) as explained above.

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35. It would have been obvious to one with ordinary skill in the art at the time the invention was made to have each cell be in three or more tones in order to provide a quality image to the user by have multi-tones.

36. **As for claims 2, 17**, JACOBSON fails to teach that the display device is provided with at least one element selected from the group consisting of a substrate, a face plate, a diffuser panel, a color filter, a diffuser film, a collimator film, a prism film or ~~and~~ a polarizing film which are colored to a predetermined color.

37. GORDON teaches of a color filter in column 6, lines 19-26.

38. It would have been obvious to one with ordinary skill in the art at the time the invention was made to include the color filter as taught by GORDON with the display device of JACOBSON in order to effectively reflect the color of the cell (see GORDON: column 6, lines 19-20).

39. **As for claim 3**, JACOBSON as modified by GORDON {in claim 2 above} fails to teach that at least one element comprises polyethylene terephthalate colored with anthraquinone dye having the predetermined color, but does disclose the use of an unspecified “dyed carrier fluid (Jacobson: column 8, lines 50-56).”

40. Applicant has not disclosed any specific advantage or criticality to having polyethylene terephthalate colored with anthraquinone dye. As such, the anthraquinone dye is an obvious matter of design choice.

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41. It would have been obvious to use any type of dye, including polyethylene terephthalate colored with anthraquinone dye, since any dye would work effectively to color the region.

42. **As for claim 6**, JACOBSON teaches that the flat panel-like display device is a liquid crystal panel in column 9, lines 6-9.

43. **As for claim 7**, JACOBSON fails to teach that the flat panel-like display device is an organic EL panel.

44. Examiner takes official notice that it is well known to use the technology as applied in JACOBSON in an OLED display.

45. It would have been obvious to one with ordinary skill in the art at the time the invention was made to implement the same color display of JACOBSON in an OLED display because OLEDs displays are energy efficient. Further, even Applicant admits that the same technology may be used in either or LCD or OLED panel (see Specifications: sections [0065, 0164]).

46. **As for claims 9, 13**, JACOBSON as modified by GORDON {as in claim 4 above} teaches that an average {claim 9} and the sum {claim 13} of the output luminance of all the cells (GORDON: Fig. 1, item 14, 16, 18) within each respective picture element (GORDON: Fig. 1, item 26) correspond to an output luminance of the respective picture element (GORDON: Fig. 1, item 26) in column 4, lines 5-10. (NOTE: Since each pixel is made up of two or more sub-pixels; it would make sense that the average and sum of each sub-pixels is representative of the average and sum of the overall pixel or picture element).

47. **As for claims 10, 14**, JACOBSON as modified by GORDON {as in claim 4 above} teaches that a cell signal generating means (not shown) for generating, based on a monochromatic image signal indicating an output luminance of each picture element (GORDON: Fig. 1, item 26) of the monochromatic image, a cell signal for each spatially adjacent cell (GORDON: Fig. 1, item 14, 16, 18) of a respective picture element (GORDON: Fig. 1, item 26) of the display device, wherein each respective picture element of the display device (not shown) corresponds to a picture element (GORDON: Fig. 1, item 26) of the monochromatic image in GORDON: column 4, lines 15-20 and in JACOBSON: column 8, lines 49-55.

48. **As for claims 11, 15**, JACOBSON as modified by GORDON {as in claim 4 above} teaches that a tone number conversion means (not shown) for carrying out a tone number conversion processing on an input original monochromatic image signal, thereby generating the monochromatic image signal indicating the output luminance of each picture element (Fig. 1, item 26) of the monochromatic image, wherein a number of tones represented by the monochromatic image signal is no greater than a number of tones which can be expressed by each respective picture element (Fig. 1, item 26) of the display device, and wherein a number of tones represented by the input original monochromatic image signal is greater than the number of tones represented by the monochromatic image signal in GORDON: column 4, lines 15-20 and in JACOBSON: column 8, lines 49-55.

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49. Claims 16 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over JACOBSON et al. (US Patent No: 5,961,804) in view of GORDON, II et al. (US Patent No: 6,271,823 B1), and Ota (US Patent No: 3,792,308).

50. **As for claim 16**, Jacobson fails to teach that the display system comprises of a light source.

51. Ota teaches that the display system comprises of a light source (Fig. 1a, items 50a-b).

52. It would have been obvious to one with ordinary skill in the art at the time the invention was made to include the light sources as taught by Ota with the display of Jacobson in order to apply radiation flux to brighten the display (Ota, column 3, lines 5-10).

53. **In regards to claim 19**, Jacobson fails to teach that the light source is time modulated to define the intensity.

54. Examiner takes official notice that it is well known to use the technology as applied in JACOBSON in an OLED display (which typically consists of a light source that is time modulated to define intensity).

55. It would have been obvious to one with ordinary skill in the art at the time the invention was made to implement the same color display of JACOBSON in an OLED display (which consists of some method to emit light which is time modulated to define intensity) because OLEDs displays are energy efficient. Further, even Applicant admits that the same technology may be used in either or LCD or OLED panel (see Specifications: sections [0065, 0164]).

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56. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over JACOBSON et al. (US Patent No: 5,961,804) in view of GORDON, II et al. (US Patent No: 6,271,823 B1) and Jacobson et al. (US Patent No: 6,721,083 B2).

57. **As for claim 18**, Jacobson ('804) as modified by GORDON fails to teach that the levels expressed per cell ranges from 3 to 236.

58. Jacobson ('083) teaches that the levels expressed per cell ranges from 3 to 236 (column 43, lines 20-25).

59. It would have been obvious to one with ordinary skill in the art at the time the invention was made to have each cell be expressed in three or more levels as taught by Jacobson ('083) with the display of Jacobson ('804) as modified by GORDON in order to provide a display with more shades or colors (Jacobson ('083), column 43, lines 20-25).

Conclusion

60. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

61. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

62. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tammy Pham whose telephone number is (571) 272-7773. The examiner can normally be reached on 8:00-5:30 (Mon-Fri).

63. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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64. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TP
3 October 2008

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